

PRACTICE SET
End Semester Examination, December, 2025

Program: BTECH (MINING)
Semester: VII
Subject: MINING MACHINERY II
Subject Code: 8PCCMiE403

Course Outcome:

On the completion of the Course, the students will be able to:

Course Outcomes	Description
CO1	Learn the basic concept of mine machinery for selecting the suitable machines and solving the excavating, loading & transportation problems in mine.
CO2	Explain the designing the open pit and layout of the haulage system and construction of bunker for storage of coal.
CO3	Understand the knowledge on winding system & choosing of appropriate conveying system and its control in the mine.
CO4	Apply the knowledge of construction & installation of aerial ropeway and man ridding system and its statutory provision.

UNIT I

SECTION A (5 marks)

1. Enumerate the list of opencast machineries which is required for production, loading & transport. CO1 (Understand)
2. List the advantages and disadvantages of shovel used in mines. CO1 (Remember)
3. Enlist the merit and demerits of Dragline. (CO 1 Understand)
4. Write the safety features of dumper. CO 1 (Understand)

SECTION B (10 marks)

5. Differentiate between Rope shovel & hydraulic shovel with proper sketch. CO1 (Understand)
6. Enlist the factors which affecting the selection of HEMM. CO1 (Understand)
7. Describe the components of Ripper with a neat sketch. CO1 (Understand)
8. Explain the uses, applicability, advantages and disadvantages of shovel. .CO1 (Understand)

9. Shovel is most operated machine in mines. Discuss the operating parameters of shovel in details. (Apply)
10. Explain the construction and working principles of any two HEMM types. CO 1(understand)

SECTION C (20 marks)

11. Dragline is crucial machine for opencast for overburden removal. Classify the Dragline used in opencast. List the main components of dragline and discuss about briefly with a neat labelled diagram. CO1 (Apply)
12. Surface miner is the only continuous machine of opencast mines. Elaborate about surface miner, its parts and uses. Also discuss the methods of cutting by surface miner with sketch. CO1 (Apply)

UNIT II

SECTION A (5 marks)

13. Explain about Electric Coal Drill. CO2 (Understand)
14. Write brief about Jack Hammer Drill. CO2 (Remember)
15. Sketch and explain about the turntable circuit. CO2 (Apply)
16. A coal seam of 3m height is mined with double-ended ranging drum shearer (DERDS) for a web depth of 0.5 m . The coal density is 1.4 tonne/m³. If the pannel width is 150 m, then what production per cycle in tonne. CO 2 (Evaluate)

Section II (10 marks)

17. What are the factors that decide the design of pit top and pit bottom layout? CO2 (Remember)
18. Describe about the traverser circuit with a brief sketch. CO2 (Apply)
19. Elaborate in details the coal handling plant with flow chart. CO2 (Understand)
20. Can you differentiate between Roder Header & Dint Header. CO2 (Apply)
21. Enumerate the criteria to be considered while designing pit bottom layout. CO2 (Apply)

Section III (20 marks)

22. Describe the constructional features and applications of shearers, and continuous miner used in underground coal mining. Compare their suitability for different seam conditions and production requirements. (Apply)

UNIT III

SECTION A (5 marks)

23. Enlist the advantages & disadvantages of scraper chain conveyor. CO3 (Understand)
24. Enumerate safety features of belt conveyor. CO3 (Understand)
25. Write applicability conditions of SDL & LHD. CO3(Understand)
26. Enlist the care of belt conveyor required during use in mines. CO3 (Apply)

SECTION B (10 marks)

27. Discuss in details about all three trackless transport vehicles used in underground mines. CO 3 (Understand)
28. Describe in detail the basic parameters of belt conveyor system. Write down the advantages and design of belt conveyor. CO3 (Understand)
29. Differentiate Armoured chain conveyor & Scraper chain conveyor. CO3 (Remember)

30. Explain Belt conveyor used in opencast mining. Write down the various merit and demerit of belt conveyor systems over truck haulage system. CO3 (Understand)
31. A belt of 1m width conveyor material of bulk density 1.35 te/m^3 at a speed of 90m/min what is its carrying capacity CO 3 (Evaluate)

SECTION C (20 marks)

32. In a conveyor belt drive the tension on the tight side is double that on the slack side. If the value of coefficient of friction is 0.3, find the angle of lap required if the belt is not to slip on its driving drum. CO3 (Evaluate)
33. SDL is used underground for transport. Can you explain in your own words about the Side discharge loader and load & haul loader with its suitability condition for installation in mine. CO 3 (apply)

UNIT IV

Section A (5 marks)

34. State the applicability conditions for using man riding system. CO4 (Apply)
35. Explain aerial ropeway system of transport. CO4 (Understand)
36. Classify the aerial ropeway system of transport. CO4 (Understand)
37. Enumerate the safety features used in Man riding transport system. CO 4 (Understand)

Section B (10 marks)

38. Do you know about man ridding used in mines? Explain about the man riding system and what are the safety features involved in it? CO4 (Apply)
39. What are the advantages and disadvantages of Man riding system and its applicable conditions? CO4 (Understand)
40. Assume there is a mine at a hilly area then which method of transportation you will choose for material & men and explain the reason(s). Also discuss advantages & disadvantages of Aerial ropeway. CO4 (Apply)

Section -C (20 marks)

41. Explain the various types of conveyors used in trackless transport systems in underground mining. Discuss their sequence control mechanisms with suitable diagrams. CO 4 (apply)

Summary Sheet

CO Wise

CO	Q. No	Marks
CO1	1,2,3,4,5,6,7,8,9,10,11,12	110
CO2	13,14,15,16,17,18,19,20,21,22	90
CO3	23,24,25,26,27,28,29,30,31,32,33	110
CO4	34,35,36,37,38,39,40,41	70
Total		380

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8,9,10,11,12]	110
Unit 2	13,14,15,16,17,18,19,20,21,22	90
Unit 3	23,24,25,26,27,28,29,30,31,32,33	110
Unit 4	34,35,36,37,38,39,40,41	70
Total		380

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	1,2,3,4,5,6,7,8,9,10,,13,14,17,19,23,25,28,29,30,35,36,37,39	190
HOT	11,12,15,16,18,20,21,22,26,27,31,32,34,38,40,41	190
Total		380

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Disclaimer: -This is a practice set. The Question in End term examination will differ from the practice set. This practice set is meant for practice only.